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ABSTRACT

A longitudinal investigation focused on the etiology of psychiatric and behavioral disorders in a sample of 190 children at risk for developmental problems. Data collection began during pregnancy and included assessments of: (1) parental personality, intelligence, and parenting attitudes; (2) parent-child interaction and relationship quality; (3) child temperament and cognitive and emotional development; and (4) life stress, marital harmony, and social support. Assessments were frequent and comprehensive in infancy and early childhood, with regular follow-up assessments during the elementary school years. Assessments included interviews with children, teachers, and parents, a review of school records, and direct observation of children. Findings indicated that attachment classification in infancy is one of the strongest risk factors in the data set. Further explorations of links between preschool behavior and problems in elementary school revealed an especially strong link between preschool aggressiveness and later problem behavior. Children with histories of secure attachment were judged as more competent than the other children by teachers and counselors. (RH)

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# EARLY PREDICTORS OF PSYCHOPATHOLOGY AND COMPETENCE IN CHILDREN

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Our research is guided by several goals which are central to the discipline of developmental psychopathology. First, we wish to trace the origins and course of disordered behavior, however complex such pathways may be.

Second, we wish to understand the factors that mediate individual developmental trajectories; that is, factors that maintain or deflect individuals from particular developmental pathways across time.

Third, we are interested in the antecedents and correlates of competence, in its own right and because aspects of competence serve as protective factors for individuals at risk for disorder.

Finally, we are interested in theory or model building. Prospective, longitudinal research is uniquely suited for examining certain theoretical issues, and these are foremost on our agenda. For example, we are currently keenly interested in the fate of early experience in the face of developmental change. Is experience like a tape recording or a chalkboard that is erased and replaced by later experience? Or does it remain active or potentially active even when not discernible in current functioning? That is, will the impact of early experience be manifest under certain circumstances or in certain contexts? May it be reactivated at particular points in development, in the face of certain critical life issues (forming an intimate partnership, the birth of a child, a significant loss)? We have evolved a number of strategies to test the proposition that early experience or prior quality of adaptation is not erased but is in some sense retained by the individual.

## A. Prediction of Disordered Behavior

Our prospective, longitudinal study was brought to bear on issues in the etiology of childhood psychiatric and behavioral disorders in a sample at risk for developmental problems (N=190). The data collection began during pregnancy and included assessments of parental personality, IQ and parenting attitudes; parent-child interaction and relationship quality; child temperament and cognitive and emotional development; life stress, marital harmony and social support. Assessments were frequent and comprehensive in infancy and early childhood with regular follow-up assessments during the elementary school years, including interviews with child, teachers and parents, school record review, and direct observation of children. Specific tests of a priori hypotheses drawn from attachment theory, as well as empirical tests of alternative etiological models (e.g., through regression analyses), have been carried out.

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Based on this data set, the following six conclusions are supported:

1) by age three years overall emotional adjustment and a wide variety of behavioral and emotional problems, including aggression, depression, passivity/withdrawal and hyperactivity may be predicted in elementary school.

2) Using a confluence of etiological factors--life stress, attachment history, abusive treatment--predictions of considerable strength may be shown (e.g., one third of the variance of aggression in third grade boys).

3) Incremental validity may be shown for key etiological factors: for example, attachment history accounts for variance beyond that predicted by life stress.

4) Different predictors more strongly predict different disorders. For example, aggression was predicted by avoidant attachment, harsh parental treatment and stressful life circumstance; passivity/withdrawal by resistent attachment, early coping deficiencies, parental neglect and low parental IQ. Depression was better predicted by a history of losses and early absense of positive affect, while hyperactivity was better predicted by overstimulating care. Flat affect in a problem-solving assessment at age two predicted later depression, but not hyperactivity.

5) There are multiple routes to the same disordered behavior. Sizable groups of hyperactive children, for example, were predicted by patterns of intrusive and overstimulating care; a small subset was predicted by an index of newborn neurological status. These groups were essentially non-overlapping (Jacobvitz & Sroufe, 1988).

6) In general, attachment classification in infancy is one of the strongest risk factors in our data set. This is especially noteworthy because it is further in time from outcomes than most of the other predictors examined.

A variety of explanatory models may be offered for these findings, including those empahsizing developmental arrest or fixation and those postulating that prediction of later behavior rests solely on environmental continuity (early behavior problems predict later environmental liabilities which cause later disorder). The explanation we favor draws on Bowlby's theory of developmental history/contemporary environment interaction. Through the mechanism of "internal working models" early experience is carried forward. The individual is transformed by ongoing experience but also, in part, creates, selects, and processes environmental input in accord with attitudes, expectations and orientations derived from the developmental history.

We have shown in past work that attachment history predicts rejection (for avoidant cases) and infantilization (for resistant cases) by preschool teachers and low popularity and aggressiveness with preschool peers (Erickson, Sroufe, & Egeland, 1985; Sroufe, 1983; Sroufe & Fleeson, 1988). Thus, history affects current environment. Currently, we are exploring links between preschool behavior and later school years problems. An especially strong link exists between preschool aggressiveness and later problem behavior. Thus, attachment history strongly predicts aggression in preschoolers which then strongly predicts later aggression and other problems (Egeland, in preparation).

B. Attachment and Social Competence

We have previously described the strong relationship between attachment assessments in infancy and social competence in preschool assessed in a variety of ways (e.g., Sroufe, 1983). We have now extended these findings in two ways. First, for our larger sample we have obtained teacher rankings and observer Q-sort indices of social competence in the middle elementary school years (primarily 3rd grade). Observers were blind to child histories and teachers at times were blind even to the child being assessed. (One advantage of the rank order procedure is that teachers may rank all children in their class before knowing the identity of the target child that happened to be in their room. We were able to do this our first year in the schools.) Both of these approaches yielded a significant result, children with secure histories being judged as more competent (Egeland et al., in preparation).

The second opportunity to extend this observation was afforded by a series of summer camps for 10-11 year olds (Elicker & Sroufe, in preparation). While only a subset of the sample was involved (total N=47), the 4-week period allowed us to obtain diverse, high quality data. Ratings and rankings were composited across four highly trained camp counselors (all blind to history). Hundreds of observations of social behavior were made on each child. And interviews with the children supplemented these data. Some of the basic findings are as follows: (1) Counselors rated and ranked children with secure histories as more socially competent, having more friends and being less dependent; (2) Observation data confirmed each of these findings (e.g., children with anxious/resistant and anxious/avoidant attachment histories more often sat next to counselors in "circle meetings"), and also demonstrated that those with anxious histories more often were alone and more often associated with the opposite gender; (3) Qualitative analyses showed those with secure histories not only to have more friends, and to form primary friendships with other children having secure histories, but to have deeper friendships as well.

C. The Fate of Early Experience

One way we have approached the question of whether early experience remains in force (as either mediator or "potential") is through a series

of regression analyses (Sroufe, Egeland & Kreutzer, submitted). Thus, we pull out statistically variance accounted for by contemporaneous or near-in predictor variables and then enter earlier experience as a subsequent step or steps in the regression. So, for example, when key maternal interaction variables (support and structure/limit setting) from a set of 42 month teaching tasks are used to predict child performance in a barrier box situation (mother not present) at that same age, a modest relationship is found. Earlier attachment assessments add considerably and significantly to the regression equation. Moreover, our assessment of overall adaptation at age 42 months (combining measures of child adaptation in the teaching tasks and problem solving situations) is modestly predicted by the quality of adaptation shown at age 24 months in our tool problem assessment. Earlier quality of attachment assessments add significantly to the prediction of 42 month variance. To take an example from later development, kindergarten teacher rankings of peer competence predict the same assessments at 3rd grade. The prediction is substantial (.40) and significant and based on a sizable N. Nonetheless earlier attachment assessments again add predictability (.44, F-change $p<.035$).

A second way we have addressed this problem is to define two groups of subjects and examine their later adaptation. The first group showed consistently positive adaptation from 12-24 months (at least 2 of the 3 assessments). Then, they showed poor adaptation in our 42 month and 54 month (curiosity box) assessments. The other group showed consistently poor adaptation across this entire period. Thus, from one point of view, these two groups are equivalent at the latter periods, both showing consistently poor adaptation. From the perspective that later experience erases earlier adaptation and that changed adaptation negates all that went before, there should be no difference in outcome of these groups at the next developmental period. However, when we examine teacher rankings of child emotional health in first, second and third grades, we find differences always favoring the group with early positive adaptation, being highly significant in second grade.

We continue to follow our sample. At the end of 6th grade, we are again gathering data from teachers and parents. We also are doing individual assessments of children. In addition to achievement assessments, we administer a Seligman attribution style questionnaire, thematic story cards, sentence completions, a fable-based moral attitudes procedure, and a detailed interview concerning friendships. At age 13 we are doing a laboratory assessment of parent child interaction, including adult males whenever available.

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